

CLAIMS

What is claimed is:

- 5 1. A swager comprising an article input mechanism, a radial
compression swaging head with a central swaging aperture aligned with the input
mechanism to receive an input article from the article input mechanism and to
swage the article, and an output mechanism aligned with the swaging head to
receive the swaged article.
- 10 2. The swager of claim 1, wherein the article input mechanism has at
least one conveyance mechanism to convey the article.
3. The swager of claim 2, wherein the at least one conveyance
15 mechanism has at least one rotatable roller.
4. The swager of claim 1, wherein the article input mechanism has at
least one sensor for detecting a predetermined aspect of the article.
- 20 5. The swager of claim 1, wherein the article input mechanism has a
first input roller assembly for receiving and conveying an article, a first sensor for
detecting a predetermined aspect of the article, a second input roller assembly for
receiving and conveying the article, a positioning roller assembly for precisely

aligning the article with respect to the swaging head, and a second sensor all constructed and arranged in a streamwise orientation.

6. The swager of claim 1, wherein the swaging head includes a die
5 plate and an closing plate pivotally coupled with respect to each other.

7. The swager of claim 1, wherein the swaging head comprises a
unitary die plate including a plurality of die segments movably coupled to each
other to provide a radial compressive force to the article disposed in the central
10 swaging aperture.

8. The swager of claim 7, wherein swaging head is rotatable.

9. The swager of claim 1, adapted for swaging at least one at least one
15 marker band to a medical catheter.

10. A swager for swaging marker bands to a medical catheter,
comprising:

a. an article input mechanism, the article input mechanism having a
20 first input roller assembly for receiving and conveying an article, a first sensor for
detecting a predetermined aspect of the article, a second input roller assembly for
receiving and conveying the article, a positioning roller assembly for precisely

aligning the article with respect to the swaging head, and a second sensor all constructed and arranged in a streamwise orientation;

b. a radial compression swaging head with a central swaging aperture, the swaging head being aligned and communicatively coupled with the input mechanism to receive an input article from the article input mechanism and to swage the article, the swaging head being rotatable and including:

- i. a unitary die plate including a plurality of die segments movably coupled to each other to provide a radial compressive force to the article disposed in the central swaging aperture; and
- ii. closing plate pivotally coupled with respect to each other; and

c. an output mechanism aligned and communicatively coupled with the swaging head to receive the swaged article.

11. A swaging apparatus comprising a unitary plate including a plurality of segments movably coupled to each other and defining a central swaging aperture, the segments being constructed and arranged to provide radial compressive force to an article disposed in the central swaging aperture.

12. The swaging apparatus of claim 11 wherein there are at least three segments.

13. The swaging apparatus of claim 12, wherein there are five segments.

14. The swaging apparatus of claim 11, further comprising a
5 circumferential base, the segments being centrally arranged with respect to the base and connected thereto.

15. The swaging apparatus of claim 14, wherein each segment is connected to the base by a radial flexure constructed as a beam and having a
10 central beam axis aligned with the central swaging apparatus.

16. The swaging apparatus of claim 11, wherein each segment has a circumferential flexure constructed of a beam extending from a neighboring segment, the circumferential flexure being constructed and arranged to couple
15 movement with two neighboring segments.

17. The swaging apparatus of claim 11, wherein each segment has a pivot point, whereby application of a force on the segment causes the segment to pivot about the pivot point and apply a radial compressive force to article disposed
20 in the central swaging aperture.

18. The swaging apparatus of claim 17, wherein the apparatus further comprises a closing plate pivotally coupled via the pivot points, and wherein the apparatus is rotatable.

5 19. The swaging apparatus of claim 11, adapted for swaging at least one at least one marker band to a medical catheter.

20. A swaging apparatus for swaging a marker band to a medical catheter, comprising:

10 a. a unitary die plate including:

1. at least three die segments movably coupled to each other and defining a central swaging aperture, the segments being constructed and arranged to provide radial compressive force to an article disposed in the central swaging aperture, the die plate further comprising

15 2. a circumferential base, the segments being centrally arranged with respect to the base and connected thereto, wherein each segment:

i. is connected to the base by a radial flexure constructed as a beam and having a central beam axis aligned with the
20 central swaging apparatus;

ii. has a circumferential flexure constructed of a beam extending from a neighboring segment, the circumferential

flexure being constructed and arranged to couple movement with two neighboring segments. and

- iii. has a pivot point. whereby application of a force on the segment causes the segment to pivot about the pivot point and apply a radial compressive force to article disposed in the central swaging aperture; and

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- b. a closing plate pivotally coupled via the pivot points, and wherein the apparatus is rotatable.